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Record of Decision:

SHERWOOD MEDICAL INDUSTRIES
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DELAND, FL
03/27/1991

03/27/91 GREER C. TIDWELL
REGIONAL ADMINISTRATOR

THE DECISION SUMMARY
INTERIM ACTION FOR THE SURFICIAL AQUIFER
DELAND, VOLUSIA COUNTY, FLORIDA

#INTRO
1.0 INTRODUCTION

THE SHERWOOD MEDICAL SITE (THE SITE) WAS PROPOSED FOR INCLUSION ON THE NATIONAL PRIORITIES LIST (NPL) IN DECEMBER 1982. THE SITE HAS BEEN THE SUBJECT OF AN INTERIM REMEDIAL MEASURES REPORT (IRM) PERFORMED BY THE RESPONSIBLE PARTIES, SHERWOOD MEDICAL, INC. (SHERWOOD) UNDER THE DIRECTION OF THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION (FDER). IN JULY 1988, SHERWOOD RETAINED ROY F. WESTON, INC. (WESTON) TO PERFORM IRM ACTIVITIES AND INITIATE THE REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS), AS SPECIFIED IN A ADMINISTRATIVE ORDER ON CONSENT ENTERED INTO IN OCTOBER 1987 WITH THE US EPA REGION IV. THE RI/FS IS CURRENTLY BEING CONDUCTED BY WESTON.

#SNLD
2.0 SITE NAME, LOCATION, AND DESCRIPTION

THE SHERWOOD SITE IS LOCATED APPROXIMATELY THREE MILES NORTHEAST OF DELAND, FLORIDA. ALTHOUGH CLOSE TO DELAND, THE SITE LIES OUTSIDE THE CITY LIMITS IN AN UNINCORPORATED AREA OF VOLUSIA COUNTY. FIGURE 2-1 SHOWS THE GEOGRAPHIC LOCATION OF THE SITE. THE SITE OCCUPIES APPROXIMATELY 42 ACRES, INCLUDING A SECTION OF LAKE MILLER, LOCATED ALONG THE SITE'S WESTERN BOUNDARY. US HIGHWAY 92 RUNS ALONG THE NORTHERN BOUNDARY OF THE SITE, WHILE A WOODED, SWAMPY AREA LIES TO THE SOUTH. A COMMERCIAL AND RESIDENTIAL AREA ALONG KEPLER ROAD IS LOCATED TO THE EAST OF THE SITE. THE SHERWOOD PROPERTY IS CURRENTLY OCCUPIED BY SEVERAL MANUFACTURING BUILDINGS, A BIOLOGICAL LABORATORY, SIZEABLE PARKING AREAS, PLUS ADDITIONAL STRUCTURES, INCLUDING AN INDUSTRIAL WASTEWATER TREATMENT FACILITY. A SITE MAP IS PRESENTED AS FIGURE 2-2.

#SHEA
3.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

SHERWOOD MEDICAL INDUSTRIES HAS OCCUPIED THE PROPERTY SINCE 1959 FOR THE MANUFACTURING OF MEDICAL SUPPLIES, PRIMARILY HYPODERMIC NEEDLES. INDUSTRIAL OPERATIONS CURRENTLY INCLUDE THE GRINDING HUB PROCESSING, AND CLEANING OF STAINLESS STEEL AND ALUMINUM PARTS USED TO MANUFACTURE HYPODERMIC SYRINGES. SHERWOOD ALSO MOLDS PLASTIC SYRINGES AND CONDUCTS IN-HOUSE QUALITY ASSURANCE AND QUALITY CONTROL.

THE SHERWOOD FACILITY PUMPS APPROXIMATELY 175,000 GALLONS OF WATER PER DAY FROM THE UNDERLYING FLORIDAN AQUIFER. APPROXIMATELY 150,000 GALLONS OF THE WATER IS USED FOR INDUSTRIAL PROCESSES AND THE REMAINDER (25,000 GALLONS) IS USED FOR DOMESTIC PURPOSES. WATER DRAWN FOR INDUSTRIAL NEEDS IS USED FOR CLEANING, MANUFACTURING, AND COOLING/EVAPORATION PROCESSES. SEVERAL MANUFACTURING STEPS RESULT IN WASTEWATER WHICH MUST BE TREATED. AN INDUSTRIAL WASTEWATER TREATMENT (IWT) FACILITY WAS CONSTRUCTED IN JULY 1983 TO MEET THE FLORIDA DRINKING WATER STANDARDS. THIS FACILITY IS PERMITTED BY FDER TO RECEIVE AND TREAT WASTEWATER FROM THE PLANT, AND TO DISCHARGE THE RESULTING EFFLUENT. THE TREATED EFFLUENT IS CURRENTLY DISPOSED OF BY PERCOLATION AND EVAPORATION IN THE DENITRIFICATION FIELD AND PERIMETER PERCOLATION POND. IN LATE 1985, SHERWOOD MEDICAL INDUSTRIES INSTALLED AN AIR STRIPPER TO PRETREAT PRODUCTION WATER USED ONSITE IN THE FACILITY'S OPERATIONS. THE AIR STRIPPER REMOVES CHLORINATED SOLVENT COMPOUNDS EXISTING IN THE WATER PUMPED FROM THE FLORIDAN AQUIFER PRODUCTION WELLS ONSITE.

BETWEEN 1971 AND 1980, THE COMPANY DISPOSED OF APPROXIMATELY TWO TONS OF LIQUID AND SLUDGE WASTE INTO TWO UNLINED PERCOLATION PONDS. DURING THIS TIME, SOLIDS WERE REMOVED FROM THE PONDS AND PLACED INTO ONSITE, UNLINED IMPOUNDMENTS. FROM 1980 AND 1982, SHERWOOD ANALYZED THE CONTENTS OF THE IMPOUNDMENTS AND DISPOSED OF THE WASTES IN AN OFFSITE LANDFILL.

IN DECEMBER 1982, THE SHERWOOD SITE WAS PROPOSED FOR INCLUSION ON THE NATIONAL PRIORITIES LIST AT THE REQUEST OF THE FDER BECAUSE OF THE THREAT OF CONTAMINATION FROM WASTES STORED IN THE HOLDING PONDS AND IMPOUNDMENTS. FDER INITIALLY BELIEVED THAT THE REMOVAL OF WASTES FROM ONSITE STORAGE AREAS WAS SUFFICIENT TO ELIMINATE THE THREAT OF CONTAMINATION. HOWEVER, SUBSEQUENT TESTING CONDUCTED BY SHERWOOD MEDICAL AND FDER REVEALED GROUNDWATER CONTAMINATION IN ONSITE WELLS.

IN OCTOBER 1985, SHERWOOD MEDICAL NOTIFIED EPA THAT THEY WOULD PERFORM A FOCUSED REMEDIAL INVESTIGATION (RI) AT THE SITE. DURING EPA'S NEGOTIATIONS WITH SHERWOOD TO CONDUCT THE RI, FDER AND THE FLORIDA DEPARTMENT OF HEALTH AND REHABILITATION SERVICES (HRS) RECEIVED HEALTH RELATED COMPLAINTS ON PRIVATE WELLS FROM NEARBY RESIDENTS. WATER SAMPLES WERE COLLECTED AND ANALYZED IN SEPTEMBER 1986 FROM OFFSITE PRIVATE WELLS AND SHERWOOD'S ONSITE SUPPLY WELL. CHLORINATED SOLVENTS WERE DETECTED IN SAMPLES FROM THE ONSITE SUPPLY WELLS, BUT NO VIOLATIONS OF DRINKING WATER STANDARDS WERE FOUND IN PRIVATE WELL SAMPLES. ADDITIONAL SAMPLES COLLECTED IN OCTOBER 1986 CONFIRMED ONSITE CONTAMINATION OF THE FLORIDAN AQUIFER. IN LIGHT OF THIS INFORMATION, IT WAS AGREED THAT A FULL SCALE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) WOULD BE CONDUCTED AT THE SITE. IN OCTOBER 1987 SHERWOOD MEDICAL ENTERED INTO A ADMINISTRATIVE ORDER ON CONSENT TO PREFORM THE RI/FS.

IN AUGUST 1987, AT FDER'S REQUEST, SHERWOOD SAMPLED THE ONSITE FLORIDAN WATER WELLS AND A DOWNGRADIENT RESIDENTIAL WELL TO ASSESS THE EXTENT OF CONTAMINATION AND EVALUATE THE NEED TO IMPLEMENT INTERIM REMEDIAL MEASURES (IRM) TO CONTROL AND TREAT THE CONTAMINATION OF THE FLORIDAN AQUIFER. BASED ON THE OBSERVED ONSITE FLORIDAN AQUIFER CONTAMINATION, FDER RECOMMENDED AN IRM ACTION BE UNDERTAKEN PRIOR TO THE COMPLETION OF THE RI/FS. SHERWOOD DEVELOPED AN INVESTIGATION PLAN TO EVALUATE THE FLORIDAN AQUIFER AND THE SHALLOW AQUIFER THROUGH A SAMPLING PROGRAM. FIELD TESTING WAS COMPLETED IN APRIL OF 1989.

AS PART OF THE IRM, SHERWOOD MEDICAL HAS BEEN TESTING ALL OF THE PRIVATE WELLS ALONG KEPLER ROAD EVERY SIX MONTHS. THE WELLS ARE IMMEDIATELY ADJACENT TO THE SITE AND EXTEND FROM THE INTERSECTION OF US 92 AND KEPLER ROAD THROUGH THE INTERSECTION OF MARSH AND KEPLER ROADS. SHERWOOD IS ALSO MONITORING THE ONLY DOWNGRADIENT PRIVATE WELL TO THE WEST OF THE SITE, JUST ACROSS LAKE MILLER. THE INVESTIGATION DETECTED ONE PRIVATE WELL WITH VOC CONCENTRATIONS ABOVE SAFE DRINKING WATER STANDARDS. THIS WELL IS LOCATED ON KEPLER ROAD, AND THE TEST RESULTS INDICATED TETRACHLOROETHENE (PCE) AND TRICHLOROETHENE (TCE) CONCENTRATIONS OF 11 PPB AND 4 PPB, RESPECTIVELY. THE APPLICABLE FLORIDA DRINKING WATER STANDARD FOR BOTH PCE AND TCE IS 3 PPB. SINCE THE DISCOVERY OF THIS CONTAMINATION, SHERWOOD HAS SUPPLIED THE AFFECTED RESIDENCE WITH BOTTLED WATER. IN JUNE 1990 A NEW WELL WAS INSTALLED IN THE FLORIDAN AQUIFER FOR THE AFFECTED RESIDENCE BY SHERWOOD MEDICAL. THE NEW WELL HAS BEEN TESTED AND NO CONTAMINATION HAS BEEN FOUND.

IN OCTOBER 1989, SHERWOOD SUBMITTED A DESIGN WORKPLAN TO FDER OUTLINING FURTHER INTERIM MEASURES TO BE CONDUCTED AT THE SITE INCLUDING THE INSTALLATION OF A PUMP AND TREAT SYSTEM TO BEGIN CLEANING THE CONTAMINATED GROUNDWATER. FDER APPROVED THE DESIGN WORKPLAN IN SEPTEMBER 1990 FOLLOWING THE RECEIPT OF THE FINAL IRM STUDY REPORT. IN NOVEMBER 1990, FDER REQUESTED THAT EPA ASSUME THE LEAD FOR INTERIM ACTIONS FOR THE SITE.

IN DECEMBER 1989, EPA AND FDER APPROVED THE RI/FS WORKPLAN SUBMITTED BY SHERWOOD MEDICAL'S CONTRACTOR, ROY F. WESTON, INC. THE FIELD WORK FOR THE RI BEGAN IN JANUARY 1990. THE FIELD WORK INCLUDED THE INSTALLATION AND SAMPLING OF ADDITIONAL FLORIDAN AQUIFER MONITORING WELLS, SAMPLING OF SOIL, SEDIMENT, AND SURFACE WATER, AND A THOROUGH RESAMPLING OF ALL EXISTING WELLS. THE FINAL RI REPORT IS SCHEDULED TO BE SUBMITTED TO EPA IN MID-1991 AND THE FS IS SCHEDULED FOR SUBMISSION IN EARLY 1992.

#HCP

4.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

THE INTERIM REMEDIAL MEASURES REPORT AND THE PROPOSED PLAN FOR THE SHERWOOD SITE WERE RELEASED TO THE PUBLIC ON JANUARY 8, 1991. THESE TWO DOCUMENTS WERE MADE AVAILABLE IN BOTH THE ADMINISTRATIVE RECORD AND AN INFORMATION REPOSITORY MAINTAINED AT THE EPA DOCKET ROOM IN REGION IV AND AT THE DELAND PUBLIC LIBRARY. THE NOTICE OF AVAILABILITY WAS PUBLISHED IN THE DELAND SUN NEWS ON JANUARY 16, 1991 AND A SECOND NOTICE WAS PUBLISHED ON JANUARY 30, 1991. A PUBLIC

COMMENT PERIOD WAS HELD FROM JANUARY 21, 1991 THROUGH FEBRUARY 21, 1990. IN ADDITION TO PUBLIC COMMENT AND THE ACCESSIBILITY OF THE INFORMATION, A PUBLIC MEETING WAS HELD ON JANUARY 31, 1991. AT THIS MEETING, REPRESENTATIVES FROM FDER AND EPA ANSWERED QUESTIONS AND ADDRESSED COMMUNITY CONCERNS. A RESPONSE TO COMMENTS RECEIVED DURING THIS PERIOD IS INCLUDED IN THE RESPONSIVENESS SUMMARY, APPENDIX A OF THIS RECORD OF DECISION. THIS DECISION DOCUMENT PRESENTS THE SELECTED INTERIM REMEDIAL ACTION FOR THE SURFICIAL AQUIFER AT THE SHERWOOD MEDICAL SITE, CHOSEN IN ACCORDANCE WITH CERCLA, AS AMENDED BY SARA AND, TO THE EXTENT PRACTICABLE, THE NATIONAL CONTINGENCY PLAN. THE DECISION FOR THIS SITE IS BASED ON THE ADMINISTRATIVE RECORD.

#SRRA

5.0 SCOPE AND ROLE OF RESPONSE ACTION WITHIN SITE STRATEGY

THE MAJOR GOAL OF THIS INTERIM ACTION IS TO PREVENT THE SPREAD OF CONTAMINATED GROUNDWATER IN THE SURFICIAL AQUIFER FROM MIGRATING OFF THE SHERWOOD SITE BOUNDARIES AND TO PREVENT THE POTENTIAL OF VERTICAL MIGRATION DOWNWARD INTO THE FLORIDAN AQUIFER. THE SURFICIAL AQUIFER UNDER THE SITE IS CONTAMINATED WITH VOLATILE ORGANIC COMPOUNDS (VOC'S) ABOVE SAFE DRINKING STANDARDS. ALTHOUGH THE SURFICIAL AQUIFER IS NOT THE SOURCE OF DRINKING WATER FOR THE LOCAL RESIDENTS, UNDER FUTURE USE SCENARIOS IT PRESENTS A THREAT TO HUMAN HEALTH AND THE ENVIRONMENT. THE CLEANUP OBJECTIVES FOR THIS INTERIM ACTION ROD ARE TO PREVENT CURRENT OR FUTURE EXPOSURE TO THE CONTAMINATED GROUNDWATER THROUGH TREATMENT AND CONTAINMENT, AND TO REDUCE THE MIGRATION OF CONTAMINANTS. THIS IS NOT THE FINAL ACTION PLANNED FOR THE SURFICIAL AQUIFER AT THE SITE. SUBSEQUENT ACTIONS ARE PLANNED TO ADDRESS FULLY THE PRINCIPAL THREATS POSED BY THE CONDITIONS AT THE SITE. THESE ACTIONS WILL BE DEFINED WHEN THE RI/FS IS COMPLETE AND WILL BE SUBJECT TO PUBLIC COMMENT.

#SSC

6.0 SUMMARY OF SITE CHARACTERIZATIONS

6.1 HYDROLOGY

THE HYDROGEOLOGIC SEQUENCE AT THE SITE INCLUDES THE SURFICIAL OR WATER TABLE AQUIFER, A CONFINING UNIT COMPOSED OF CLAY, SANDY CLAY, AND SHELL LAYERS, AND THE CONFINED FLORIDAN AQUIFER.

THE SURFICIAL AQUIFER EXTENDS FROM THE UPPERMOST SATURATED SEDIMENTS (TYPICALLY LESS THAN 10 FEET BELOW GROUND SURFACE) TO THE TOP OF THE FIRST AQUITARD FOUND AT DEPTHS OF 25 TO 50 FEET BELOW LAND SURFACE. THE SURFICIAL AQUIFER HAS BEEN RECORDED AS 35 FEET THICK NEAR KEPLER ROAD BORDERING THE EASTERN EDGE OF THE SITE AND 10 TO 15 FEET THICK ALONG THE WESTERN PROPERTY BOUNDARY NEAR LAKE MILLER.

THE CONFINING UNIT UNDERLYING THE SURFICIAL AQUIFER IS COMPRISED OF A FOUR TO EIGHT FOOT THICK CLAY TO SANDY CLAY THAT OVERLIES A 35 TO 40 FOOT THICK POORLY SORTED DEPOSIT OF SHELLS, SAND, SILT, AND CLAY. COLLECTIVELY, THESE SEDIMENTS SERVE TO RESTRICT THE VERTICAL MOVEMENT OF WATER FROM THE SURFICIAL AQUIFER TO THE CONFINED FLORIDAN AQUIFER SYSTEM BELOW.

THE FLORIDAN AQUIFER IS A HIGHLY PRODUCTIVE AQUIFER AND IS ENCOUNTERED BENEATH THE CONFINING UNIT. THE FLORIDAN AQUIFER IS THE SOURCE OF DRINKING WATER FOR THE LOCAL RESIDENTS.

6.2 SURFICIAL AQUIFER

TWELVE MONITOR WELLS WERE INSTALLED IN THE SURFICIAL AQUIFER DURING THE JUNE 1989 IRM STUDY (FIGURE 6-1). THE ANALYTICAL RESULTS (TABLE 6-1) OF THE IRM STUDY REVEALED THAT THE MAJOR CONTAMINANTS WERE TETRACHLOROETHENE (PCE), TRICHLOROETHENE (TCE), AND ACETONE. CONCENTRATIONS OF OTHER VOLATILE ORGANIC COMPOUNDS (VOCS) WERE ALSO DETECTED, BUT THESE CONCENTRATIONS WERE LOW COMPARED TO THE CONCENTRATIONS OF PCE AND TCE. ANALYSIS OF THE SURFICIAL AQUIFER INDICATED THAT CONCENTRATIONS OF PCE RANGED FROM 130 TO 11,000 PPB AND CONCENTRATIONS OF TCE RANGED FROM 16 TO 420 PPB. THE RESULTS INDICATE THAT GENERALLY THE HIGHEST CONCENTRATIONS OF VOCS WERE PRESENT ON THE DOWNGRADIENT (WEST) SIDE OF THE SITE ALONG LAKE MILLER.

#SSR
7.0 SUMMARY OF SITE RISKS

CERCLA DIRECTS THAT THE AGENCY MUST PROTECT HUMAN HEALTH AND THE ENVIRONMENT FROM CURRENT AND POTENTIAL EXPOSURE TO HAZARDOUS SUBSTANCES AT SUPERFUND SITES. IN ORDER TO ASSESS THE CURRENT AND POTENTIAL RISKS FOR THE SHERWOOD SITE, A FULL RISK ASSESSMENT IS BEING CONDUCTED AS PART OF THE FEASIBILITY STUDY.

ALTHOUGH THE SURFICIAL AQUIFER IS NOT THE SOURCE OF DRINKING WATER FOR THE LOCAL RESIDENTS, UNDER FUTURE USE SCENARIOS IT PRESENTS A THREAT TO HUMAN HEALTH AND THE ENVIRONMENT. RESULTS OF THE JUNE 1989 IRM STUDY REVEALED THAT THE MAJOR CONTAMINANTS WERE TETRACHLOROETHENE (PCE), TRICHLOROETHENE (TCE), AND ACETONE. ANALYSIS OF THE SURFICIAL AQUIFER INDICATED THAT CONCENTRATIONS OF PCE RANGED FROM 130 TO 11,000 PPB AND CONCENTRATIONS OF TCE RANGED FROM 16 TO 420 PPB. THE APPLICABLE DRINKING WATER STANDARD FOR BOTH PCE AND TCE IS 3 PPB, WHICH IS THE FLORIDA STATE STANDARD. THE STATE STANDARD IS MORE STRINGENT THAN THE FEDERAL STANDARD OF 5 PPB FOR THE RESPECTIVE CONTAMINANTS. THEREFORE, GIVEN THE HIGH LEVELS IN THE SURFICIAL AQUIFER, EPA HAS DETERMINED THAT A POTENTIAL RISK TO HUMAN HEALTH AND THE ENVIRONMENT EXISTS.

THE MAJOR GOAL OF THE INTERIM ACTION IS TO PREVENT THE SPREAD OF CONTAMINATED GROUNDWATER IN THE SURFICIAL AQUIFER FROM MIGRATING OFF THE SHERWOOD SITE BOUNDARIES AND TO PREVENT THE POTENTIAL OF VERTICAL MIGRATION DOWNWARD INTO THE FLORIDAN AQUIFER. THIS ACTION WILL ACHIEVE SIGNIFICANT RISK REDUCTION EARLY IN THE SUPERFUND PROCESS.

ACTUAL OR THREATENED RELEASES OF HAZARDOUS SUBSTANCES FROM THIS SITE, IF NOT ADDRESSED BY IMPLEMENTING THE RESPONSE ACTION SELECTED IN THIS RECORD OF DECISION (ROD), MAY PRESENT A CURRENT OR POTENTIAL THREAT TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT.

#DRA
8.0 DESCRIPTION OF REMEDIAL ACTION ALTERNATIVES

8.1 ALTERNATIVE 1 - NO ACTION

THE NO ACTION ALTERNATIVE IS REQUIRED BY THE NATIONAL CONTINGENCY PLAN (NCP) TO BE CONSIDERED THROUGH THE DETAILED ANALYSIS. IT PROVIDES A BASELINE FOR COMPARISON OF OTHER ALTERNATIVES. UNDER THE NO ACTION ALTERNATIVE, NO SOURCE CONTROL REMEDIAL MEASURES WOULD BE UNDERTAKEN AT THE SHERWOOD SITE.

CONSTRUCTION COST	$0
ANNUAL OPERATION AND MAINTENANCE COSTS (O&M)	$0
MONTHS TO IMPLEMENT	0

THE NO ACTION ALTERNATIVE WOULD NOT ELIMINATE ANY EXPOSURE PATHWAYS OR REDUCE THE LEVEL OF RISK.

8.2 ALTERNATIVE 2 - PUMP AND TREAT SYSTEM

IN ORDER TO MINIMIZE POTENTIAL MIGRATION OF CONTAMINATION IN THE SURFICIAL AQUIFER INTO THE FLORIDAN AQUIFER OR INTO AREAS OFF THE SHERWOOD SITE PROPERTY BOUNDARIES, A SYSTEM OF RECOVERY WELLS WILL BE INSTALLED IN THE DOWNGRADIENT (WEST) SIDE OF THE SITE. THE WELLS WILL BE LOCATED TO RECOVER GROUNDWATER IN THE MORE HIGHLY CONTAMINATED AREAS, AND WILL BE DESIGNED TO CREATE A HYDRAULIC BARRIER ALONG THE WEST SIDE OF THE SITE. RECOVERED GROUNDWATER WILL BE ROUTED TO A AIR STRIPPER FOR TREATMENT. THE AIR STRIPPER WILL TREAT THE GROUNDWATER TO MEET ALL FEDERAL AND STATE WATER QUALITY STANDARDS. ADDITIONALLY, THE AIR STRIPPER WILL BE DESIGNED TO MEET THE FEDERAL AND STATE AIR QUALITY STANDARDS. THE TREATED GROUNDWATER WILL THEN BE DISCHARGED ONSITE INTO LAKE MILLER. THE TREATED EFFLUENT WILL MEET THE SUBSTANTIVE REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM FOR ONSITE DISCHARGE TO SURFACE WATER.

CONSTRUCTION COST	$400,000
ANNUAL OPERATION AND MAINTENANCE COSTS (O&M)	$ 35,000
MONTHS TO IMPLEMENT	5

THE PUMP AND TREAT SYSTEM WILL PREVENT THE SPREAD OF CONTAMINATED GROUNDWATER IN THE SURFICIAL AQUIFER FROM MIGRATING OFF THE SHERWOOD SITE BOUNDARIES. THIS ACTION WILL ACHIEVE SIGNIFICANT RISK REDUCTION EARLY IN THE SUPERFUND PROCESS.

#SCAA

9.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

THIS SECTION PROVIDES THE BASIS FOR DETERMINING WHICH ALTERNATIVE (I) MEETS THE THRESHOLD CRITERIA OF OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLIANCE WITH ARARS, AND (II) PROVIDES THE "BEST BALANCE" BETWEEN EFFECTIVENESS AND REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT, IMPLEMENTABILITY, AND COST, AND (III) STATE AND COMMUNITY ACCEPTANCE. A GLOSSARY OF THE EVALUATION CRITERIA IS PROVIDED IN TABLE 9.1.

9.1 OVERALL PROTECTION OF HUMAN HEALTH AND ENVIRONMENT

THE NO ACTION ALTERNATIVE IS NOT PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT BECAUSE IT ALLOWS THE CONTAMINANTS TO CONTINUE TO MIGRATE. THE NO ACTION ALTERNATIVE WOULD NOT ELIMINATE ANY EXPOSURE PATHWAYS OR REDUCE THE LEVEL OF RISK. THEREFORE, THE NO ACTION ALTERNATIVE WILL NOT BE CONSIDERED FURTHER IN THIS ANALYSIS AS AN OPTION FOR THE SITE.

THE PUMP AND TREAT SYSTEM PROVIDES PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT BY REDUCING, OR CONTROLLING, THE RISK THROUGH TREATMENT OF THE GROUNDWATER AND PREVENTING THE SPREAD OF CONTAMINATION.

9.2 COMPLIANCE WITH ARARS

THE AIR STRIPPER WOULD TREAT THE GROUNDWATER TO MEET ALL FEDERAL AND STATE WATER QUALITY STANDARDS FOR DISCHARGE TO SURFACE WATER. ADDITIONALLY, THE AIR STRIPPER WILL BE DESIGNED TO MEET THE FEDERAL AND STATE AIR QUALITY STANDARDS.

THE FINAL CLEANUP LEVELS FOR THE GROUNDWATER ARE NOT ADDRESSED IN THIS ROD BECAUSE SUCH GOALS ARE BEYOND THE LIMITED SCOPE OF THIS ACTION. THE FINAL CLEANUP LEVELS WOULD BE ADDRESSED BY THE FINAL REMEDIAL ACTION ROD FOR THE SITE.

9.3 LONG-TERM EFFECTIVENESS AND PERMANENCE

EXTRACTION AND TREATMENT OF CONTAMINANTS IN THE SURFICIAL AQUIFER WILL ACHIEVE SOME REDUCTION IN THE CONTAMINATION AT THE SITE, AND WILL ENHANCE THE ATTAINMENT OF A PERMANENT REMEDY FOR THIS SITE. THE EPA WILL CONTINUE TO EVALUATE LONG-TERM EFFECTIVENESS AND PERMANENCE AS PART OF THE DEVELOPMENT OF THE FINAL ACTION FOR THE SITE.

9.4 REDUCTION OF TOXICITY, MOBILITY, OR VOLUME OF THE CONTAMINANTS THROUGH TREATMENT

THE PUMP AND TREAT SYSTEM WOULD REDUCE THE TOXICITY, MOBILITY, AND VOLUME OF THE EXTRACTED GROUNDWATER FROM THE SURFICIAL AQUIFER BY TREATING IT IN AN AIR STRIPPER. THE AIR STRIPPER IS A PROVEN TREATMENT PROCESS WHICH HAS BEEN DEMONSTRATED TO EFFECTIVELY REDUCE VOC CONTAMINATION BY FORCING AN AIR STREAM THROUGH THE WATER AND CAUSING THE COMPOUNDS TO EVAPORATE.

9.5 SHORT-TERM EFFECTIVENESS

THERE WOULD BE NO ADVERSE EFFECTS TO HUMAN HEALTH OR THE ENVIRONMENT FROM THE PUMP AND TREAT SYSTEM. ANY SHORT-TERM RISK TO WORKERS INVOLVED IN CONSTRUCTION OF THE REMEDY WOULD BE REDUCED THROUGH IMPLEMENTATION OF A HEALTH AND SAFETY PLAN. THE INTERIM ACTION IS EFFECTIVE IN THE SHORT-TERM BECAUSE IT WOULD PREVENT FURTHER DEGRADATION AND WOULD INITIATE REDUCTION IN TOXICITY, MOBILITY, AND VOLUME OF CONTAMINATION UNTIL A FINAL ACTION IS SELECTED. THE PUMP AND

TREAT SYSTEM IS A TREATMENT PROCESS WHICH HAS BEEN DEMONSTRATED TO EFFECTIVELY REDUCE VOC CONTAMINATION ON OTHER SUPERFUND SITES.

9.6 COST

THE ESTIMATED COST FOR THE PUMP AND TREAT SYSTEM IS $400,000 WITH AN ANNUAL OPERATION AND MAINTENANCE COST OF $35,000. PRESENT WORTH COST COULD NOT BE CALCULATED BECAUSE THE NUMBER OF YEARS THAT THE INTERIM ACTION SYSTEM WOULD BE IN PLACE IS UNCERTAIN.

9.7 STATE ACCEPTANCE

THE STATE OF FLORIDA, AS REPRESENTED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION, CONCURS IN THE SELECTION OF THE PUMP AND TREAT SYSTEM AS AN INTERIM ACTION FOR THE SHERWOOD SITE.

9.8 COMMUNITY ACCEPTANCE

BASED ON COMMENTS MADE BY CITIZENS AT THE PUBLIC MEETING HELD ON JANUARY 31, 1991, AND THOSE RECEIVED DURING THE PUBLIC COMMENT PERIOD, THE AGENCY PERCEIVES THAT THE COMMUNITY BELIEVES THE INTERIM ACTION WILL EFFECTIVELY PROTECT HUMAN HEALTH AND THE ENVIRONMENT.

#SR
10.0 THE SELECTED REMEDY

BASED UPON CONSIDERATION OF THE REQUIREMENTS OF CERCLA, THE DETAILED ANALYSIS OF THE ALTERNATIVES, AND PUBLIC COMMENTS, EPA HAS DETERMINED THAT THE PUMP AND TREAT SYSTEM FOR THE SURFICIAL AQUIFER IS AN APPROPRIATE INTERIM ACTION UNTIL A FINAL ACTION FOR THE SITE IS DETERMINED.

THE MAJOR GOAL OF THE INTERIM ACTION IS TO PREVENT THE SPREAD OF CONTAMINATED GROUNDWATER IN THE SURFICIAL AQUIFER FROM MIGRATING OFF THE SHERWOOD SITE BOUNDARIES AND TO PREVENT THE POTENTIAL OF VERTICAL MIGRATION DOWNWARD INTO THE FLORIDAN AQUIFER. THIS ACTION WILL ACHIEVE SIGNIFICANT RISK REDUCTION EARLY IN THE SUPERFUND PROCESS.

THE FINAL CLEANUP LEVELS FOR THE SURFICIAL AQUIFER GROUNDWATER ARE NOT ADDRESSED IN THIS ROD BECAUSE SUCH GOALS ARE BEYOND THE LIMITED SCOPE OF THIS ACTION. THE FINAL CLEANUP LEVELS WILL BE ADDRESSED BY THE FINAL REMEDIAL ACTION ROD FOR THE SITE.

#SD
11.0 STATUTORY REQUIREMENTS

THE US EPA AND FDER BELIEVE THAT THE PUMP AND TREAT SYSTEM WILL SATISFY THE STATUTORY REQUIREMENTS OF PROVIDING PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT, ATTAIN APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS DIRECTLY ASSOCIATED WITH THIS ACTION AND WILL BE COST-EFFECTIVE. SECTIONS 11.1 THRU 11.6 BELOW SUMMARIZE THE STATUTORY REQUIREMENTS FOR THIS SITE.

11.1 PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

ALTHOUGH THE SURFICIAL AQUIFER IS NOT THE SOURCE OF DRINKING WATER FOR THE LOCAL RESIDENTS, UNDER FUTURE USE SCENARIOS IT PRESENTS A THREAT TO HUMAN HEALTH AND THE ENVIRONMENT. THE INTERIM ACTION REMEDY PROVIDES PROTECTION OF HUMAN HEALTH FOR FUTURE USERS THROUGH EXTRACTION AND TREATMENT OF CONTAMINATED GROUNDWATER UNTIL A FINAL ACTION IS DETERMINED. THE REMEDY ALSO PROVIDES PROTECTION TO THE ENVIRONMENT BY PREVENTING THE SPREAD OF CONTAMINATION.

11.2 ATTAINMENT OF THE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARAR)

THE FINAL CLEANUP LEVELS FOR THE GROUNDWATER ARE NOT ADDRESSED IN THIS ROD BECAUSE SUCH GOALS ARE BEYOND THE LIMITED SCOPE OF THIS ACTION. THE FINAL CLEANUP LEVELS WILL BE ADDRESSED BY THE FINAL REMEDIAL ACTION ROD FOR THE SITE.

THE AIR STRIPPER WILL TREAT THE GROUNDWATER TO MEET ALL FEDERAL AND STATE GROUNDWATER QUALITY STANDARDS FOR DISCHARGE TO SURFACE WATER. ADDITIONALLY, THE AIR STRIPPER WILL BE DESIGNED TO MEET THE FEDERAL AND STATE AIR QUALITY STANDARDS. THE TREATED GROUNDWATER WILL THEN BE DISCHARGED ONSITE INTO LAKE MILLER. THE TREATED EFFLUENT WILL MEET THE SUBSTANTIVE REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM FOR ONSITE DISCHARGE TO SURFACE WATER.

11.3 COST EFFECTIVENESS

THE INTERIM ACTION REMEDY EMPLOYS A PROVEN TECHNOLOGY WHICH CAN BE IMPLEMENTED YEAR ROUND AND AFFORDS OVERALL EFFECTIVENESS PROPORTIONAL TO ITS COSTS SUCH THAT THE REMEDY REPRESENTS A REASONABLE VALUE FOR THE MONEY.

11.4 UTILIZATION OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGY OR RESOURCE RECOVERY TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE

THE OBJECTIVES FOR THIS INTERIM ACTION ARE TO PREVENT CURRENT OR FUTURE EXPOSURE TO THE CONTAMINATED GROUNDWATER IN THE SURFICIAL AQUIFER, THROUGH TREATMENT AND CONTAINMENT, AND TO REDUCE THE MIGRATION OF CONTAMINANTS. EXTRACTION AND TREATMENT OF CONTAMINANTS IN THE SURFICIAL AQUIFER WILL ACHIEVE SOME REDUCTION IN THE CONTAMINATION AT THE SITE, AND WILL ENHANCE THE ATTAINMENT OF A PERMANENT REMEDY FOR THIS SITE. THE EPA WILL CONTINUE TO EVALUATE LONG-TERM EFFECTIVENESS AND PERMANENCE AS PART OF THE DEVELOPMENT OF THE FINAL ACTION FOR THE SITE. THIS IS NOT THE FINAL ACTION PLANNED FOR THE SURFICIAL AQUIFER AT THE SITE. SUBSEQUENT ACTIONS WILL ADDRESS FULLY THE PRINCIPAL THREATS POSED BY THE CONDITIONS AT THE SITE. UTILIZATION OF A PERMANENT SOLUTION WILL BE ADDRESSED IN THE FINAL DECISION DOCUMENT FOR THE SITE.

11.5 PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

THE PUMP AND TREAT REMEDY IS A TREATMENT PROCESS WHICH HAS BEEN DEMONSTRATED TO EFFECTIVELY REDUCE VOC CONTAMINATION AT OTHER SUPERFUND SITES. THEREFORE, THE STATUTORY PREFERENCE FOR REMEDIES THAT EMPLOY TREATMENT AS A PRINCIPAL ELEMENT IS SATISFIED.

11.6 DOCUMENTATION OF SIGNIFICANT CHANGES

THE PROPOSED PLAN FOR THE SHERWOOD SITE WAS RELEASED FOR PUBLIC COMMENT ON JANUARY 15, 1991. THE PROPOSED PLAN IDENTIFIED THE PUMP AND TREAT SYSTEM AS THE PREFERRED INTERIM ACTION REMEDY FOR THE SURFICIAL AQUIFER. EPA REVIEWED ALL WRITTEN AND VERBAL COMMENTS SUBMITTED DURING THE PUBLIC COMMENT PERIOD. UPON REVIEW OF THESE COMMENTS, IT WAS DETERMINED THAT NO SIGNIFICANT CHANGES TO THE REMEDY, AS IT WAS ORIGINALLY IDENTIFIED IN THE PROPOSED PLAN, WERE NECESSARY.

#TA

TABLE 9.1
GLOSSARY OF EVALUATION CRITERIA

OVERALL PROTECTION OF HUMAN HEALTH AND ENVIRONMENT - ADDRESSES WHETHER OR NOT A REMEDY PROVIDES ADEQUATE PROTECTION AND DESCRIBES HOW RISKS POSED THROUGH EACH PATHWAY ARE ELIMINATED, REDUCED, OR CONTROLLED THROUGH TREATMENT ENGINEERING CONTROLS OR INSTITUTIONAL CONTROLS.

COMPLIANCE WITH ARARS - ADDRESSES WHETHER OR NOT A REMEDY WILL MEET ALL OF THE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS OF OTHER FEDERAL AND STATE ENVIRONMENTAL STATUTES AND/OR PROVIDE GROUNDS FOR INVOKING A WAIVER.

LONG-TERM EFFECTIVENESS AND PERMANENCE - REFERS TO THE MAGNITUDE OF RESIDUAL RISK AND THE ABILITY OF A REMEDY TO MAINTAIN RELIABLE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT OVER TIME ONCE CLEANUP GOALS HAVE MET.

REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT - IS THE ANTICIPATED PERFORMANCE OF THE TREATMENT TECHNOLOGIES THAT MAY BE EMPLOYED IN A REMEDY.

SHORT-TERM EFFECTIVENESS - REFERS TO THE SPEED WITH WHICH THE REMEDY ACHIEVES PROTECTION, AS WELL AS THE REMEDY'S POTENTIAL TO CREATE ADVERSE IMPACTS ON HUMAN HEALTH AND ENVIRONMENT THAT MAY RESULT DURING THE CONSTRUCTION AND IMPLEMENTATION PERIOD.

IMPLEMENTABILITY - IS THE TECHNICAL AND ADMINISTRATIVE FEASIBILITY OF A REMEDY INCLUDING THE AVAILABILITY OF MATERIALS AND SERVICES NEEDED TO IMPLEMENT THE CHOSEN SOLUTION.

COST - INCLUDES CAPITAL AND OPERATION AND MAINTENANCE COSTS.

STATE ACCEPTANCE - INDICATES WHETHER THE STATE CONCURS WITH, OPPOSES, OR HAS NO COMMENT ON THE PROPOSED PLAN.

COMMUNITY ACCEPTANCE - THE RESPONSIVENESS SUMMARY IN THE APPENDIX OF THE RECORD OF DECISION REVIEWS THE PUBLIC COMMENTS RECEIVED FROM THE PROPOSED PLAN PUBLIC MEETING.